

Attorney Docket No.: **KUZ0031US.NP**  
Inventors: **Minoru Kohara**  
Serial No.: **10/584,372**  
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**REMARKS**

Claims 1-10 are pending in the instant application. Claims 1-10 have been rejected. Claims 1, 2, 3, 4, 5, 7, 8 and 10 have been amended. Claim 6 has been canceled. New claim 11 has been added. Support for the amendments is provided in canceled claim 6 and in paragraph [0032] of the specification. No new matter is added by these amendments. Reconsideration is respectfully requested in light of these amendments and the following remarks.

**I. Priority**

Applicants are providing herewith a certified copy of the JP2004-002491 application as required by 35 U.S.C. 119(b).

**II. Objection to Disclosure**

The specification has been objected to as the word "amine" appears twice in line 1 of page 14. Applicants have amended the specification to correct this inadvertent typographical error.

Further, Applicants have reviewed the specification to identify federally registered U.S. trademarks. In particular, the Examiner pointed to paragraph [0039]. Applicants performed a search of these terms on TESS - the database of federally registered U.S. trademarks. None of

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the terms in paragraph [0039] are federally registered trademarks. However, Applicants have amended the specification at paragraph [0042] and paragraphs [0059] and [0060] to indicate the proprietary nature of the terms FUROSEMIDE and CORONATE HL and to include their generic descriptions.

Applicants thank the Examiner for information regarding the preferred layout for the specification of a utility application. It is respectfully pointed out that this patent application is the National Stage of International Application No. PCT/JP2005/000104, filed January 7, 2005, and claims the benefit of priority from Japanese Application No. 2004-002491. Rearrangement of the specification to a preferred layout for U.S. patent applications should not be required.

Withdrawal of the objections to the specification is respectfully requested.

### **III. Claim Objection**

Claims 4, 5 and 7 have been objected to as not clearly reciting which elements of the group are required in the composition. Accordingly, in an earnest effort to advance the prosecution of this case, Applicants have amended the

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claims to make clear the recited elements and to include, where needed, proper Markush language.

No new matter is added by these amendments.

Withdrawal of this objection is respectfully requested.

**IV. Rejection of Claim 6 under 35 U.S.C. 112, second paragraph**

Claim 6 has been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is respectfully pointed out that claim 6 has been canceled, thus mooting the rejection as it pertains to this claim. Claim 1 has been amended to be drawn to a patch as supported by teachings throughout the specification and to include language from original claim 6.

Withdrawal of this rejection is respectfully requested.

**V. Rejection of Claims under 35 U.S.C. 103(a)**

Claims 1-3 and 6-10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiyama (U.S. Patent 6,632,906).

Claims 4 and 5 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiyama (U.S. Patent

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6,632,906) in view of Holguin et al. (U.S. Patent  
6,558,790).

Applicants respectfully traverse these rejections.

Claims of the instant application have been amended to recite a patch comprising a pressure-sensitive adhesive layer comprising an acrylic copolymer containing from 3 to 25% by weight of hydroxyethyl (meth)acrylate as a constituent, a plasticizer and a pseudo-crosslinking compound, wherein the ratio of the content of the plasticizer to the content of the pseudo-crosslinking compound ranges from 30:1 to 250:1, wherein a shearing strain migration length (3g, 2min.) of the pressure-sensitive adhesive layer is not more than a thickness of the pressure-sensitive adhesive layer, and a shearing strain migration length (80g, 5min.) is not less than 10 times the thickness of the pressure-sensitive adhesive layer.

Neither Kamiyama (U.S. Patent 6,632,906) alone nor Kamiyama (U.S. Patent 6,632,906) in view of Holguin et al. (U.S. Patent 6,558,790) suggest all elements of the instant claimed invention.

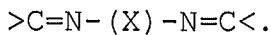
As acknowledged by the Examiner, the prior art does not disclose a pressure-sensitive adhesive layer comprising an

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acrylic copolymer containing from 3 to 25% by weight of hydroxyethyl (meth)acrylate as a constituent.

Nor do Kamiyama and/or Holguin et al. disclose pseudo-crosslinking.

Instead, Kamiyama teaches at col. 2, lines 20-24, that novelty of their adhesive compounds is dependent upon a crosslinking reaction taking place between an amine group of the crosslinking agent and a carbonyl group of the polymer, wherein the crosslinks comprise a moiety:



This is clearly not a pseudo-crosslinkage as described in the instant patent application beginning at page 14, paragraph [0032] but rather a chemical bonding. At page 15 of the instant application, Applicants make clear that pseudo-crosslinking is micro-structurally different from a rigid crosslinking due to conventionally known chemical or ionic bonding.

Also clear from teachings in paragraphs [0032] to [0035] and Figure 1 of the instant application is that having the acrylic polymer containing from 3 to 25% by weight of hydroxyethyl(meth) acrylate, as well as the plasticizer and pseudo-crosslinking compound in the claimed percentages, produces an adhesive composition which

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possesses a shearing strain migration length (3g, 2min.) of the pressure-sensitive adhesive layer which is not more than the thickness of the pressure-sensitive adhesive layer, and a shearing strain migration length (80g, 5min.) which is not less than 10 times the thickness of the pressure-sensitive adhesive layer. This property of the adhesive composition of the present invention differs from a chemically bonded adhesive.

Chemically or ionically crosslinked adhesives behave like rubber without losing elasticity under a medium to high stress. More specifically, the shearing strain migration length of a chemically crosslinked acrylic polymer by the weighting of 3 g at 2 minutes is near 0  $\mu\text{m}$ , and that by the weighting of 80 g at 5 minutes is approximately 100  $\mu\text{m}$  (Figure 1, A;3g and 80g) which means the adhesive does not exhibit plasticity when it is under medium pressure (e.g. the adhesive is pulled). Because of this plasticity, the conventional crosslinked adhesive cannot follow the movement of skin and tends to peel off.

In contrast, in adhesives of the present invention prepared with a pseudo-crosslinking agent, the shearing strain migration length by weighting of 3 g at 2 minutes is similar to that of a chemically crosslinked adhesive

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(Figure 1, B, 3g). However, weighting of 80 g at 5 minutes is much greater than 600  $\mu\text{m}$  (Figure 1, B, 80g), which means that the adhesive behaves elastically under low pressure but behaves plastically under a medium stress, enabling the adhesive to follow the movement of skin and stay on.

Holguin et al. fails to remedy deficiencies in the teachings of Kamiyama. Holguin et al. used aluminum acetylacetone (AAA) as a crosslinking agent. See col. 3, line 40. AAA is used in Comparative Example 8 of the instant specification. As shown therein, crosslinking with AAA renders the adhesive a small shearing strain migration length by the weighting of 80g at 5 minutes. The plasticity under a medium pressure is therefore low. Accordingly AAA cannot be used as a pseudo-crosslinking agent in the present invention.

Thus, neither of the cited references teach or suggest the use of pseudo-crosslinking agents with acrylic polymers in preparation of pressure-sensitive adhesives. As demonstrated in the instant specification, adhesives prepared in accordance with the present invention exhibit improved adhesive properties under pressure caused by the movement of skin as compared to adhesives prepared by chemical bonding as taught by Kamiyama and Holguin et al.

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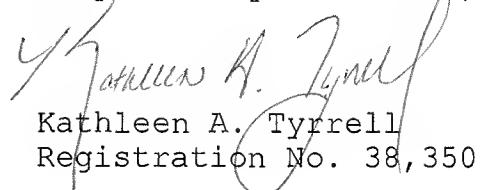
These enhanced adhesive properties are unexpected over teachings of Kamiyama and Kamiyama in view of Holguin et al. Accordingly the cited art cannot render obvious the instant claimed invention.

Withdrawal of these rejections under 35 U.S.C. 103(a) is therefore respectfully requested.

**VI. Conclusion**

Applicants believe that the foregoing comprises a full and complete response to the Office Action of record. Accordingly, favorable reconsideration and subsequent allowance of the pending claims is earnestly solicited.

Respectfully submitted,

  
Kathleen A. Tyrrell  
Registration No. 38,350

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LICATA & TYRRELL P.C.  
66 E. Main Street  
Marlton, NJ 08053  
856-810-1515